PIMCO

January 17, 2017

Addressing the Asset Allocators' Dilemma

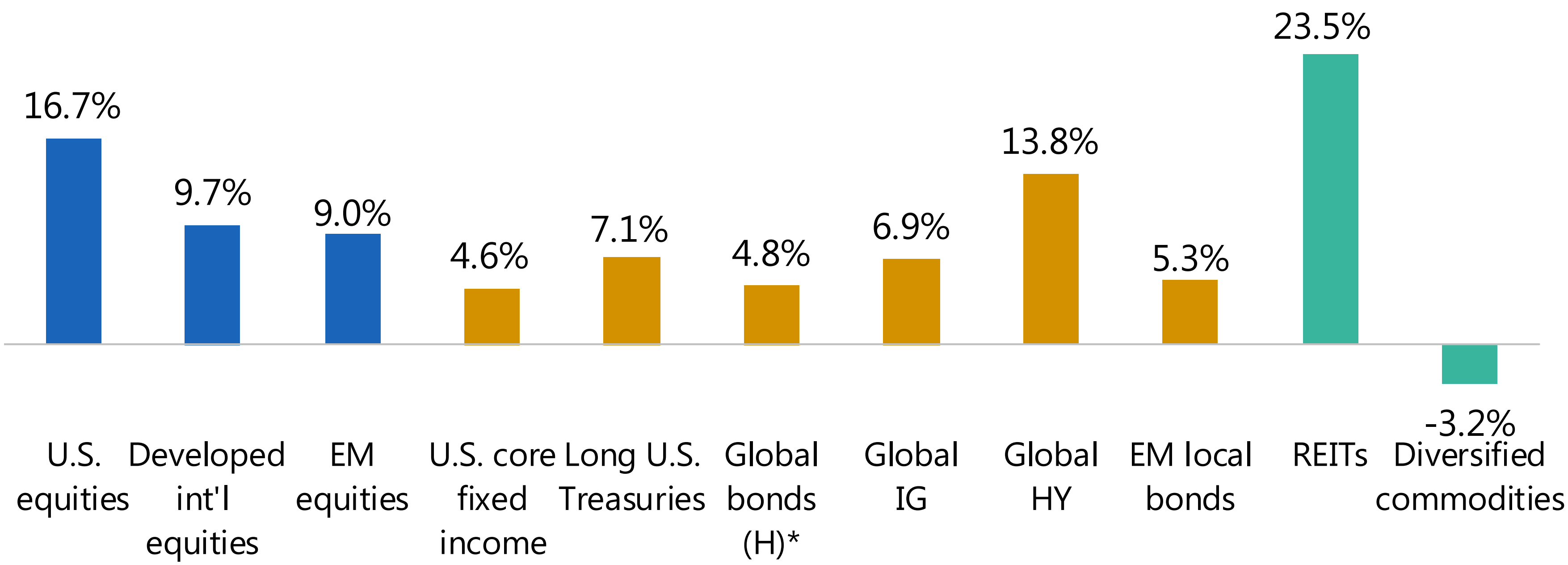
For Institutional Investor Use Only

A company of **Allianz**

Most asset classes have delivered strong returns post-crisis

Falling interest rates and rising valuations drove asset prices

Asset class returns (Annualized) - March 31 2009 to September 2016



Sharpe Ratio

1.25	0.55	0.43	1.53	0.60	1.55	1.84	1.64	0.40	1.11	-0.23

As of 30 September 2016
SOURCE: Bloomberg, PIMCO.
Past performance is not at guarantee or reliable indicator or future results.
* Global developed bonds, ex-U.S. hedged.
U.S. equities: S&P 500 Index; Developed int'l equities: MSCI EAFE Net Dividend Index (USD Unhedged); EM Equities: MSCI Emerging Markets Index; U.S. core fixed income: Barclays U.S. Aggregate Index; Global bonds (H): JPMorgan GBI Global ex-US USD Hedged; Global IG: Barclays Global Agg Credit (USD Hedged); Global HY: MLX DevelMarkHighYieldConstr(USD Hedged); EM local bonds: JPMorgan Government Bond Index- Emerging Markets Global Diversified Index (Unhedged); REITS: Dow Jones U.S. Select REIT Total Return Index; Diversified commodities: Bloomberg Commodity Index Total Return
Refer to Appendix for additional investment strategy and risk information.

Now the initial conditions are very different

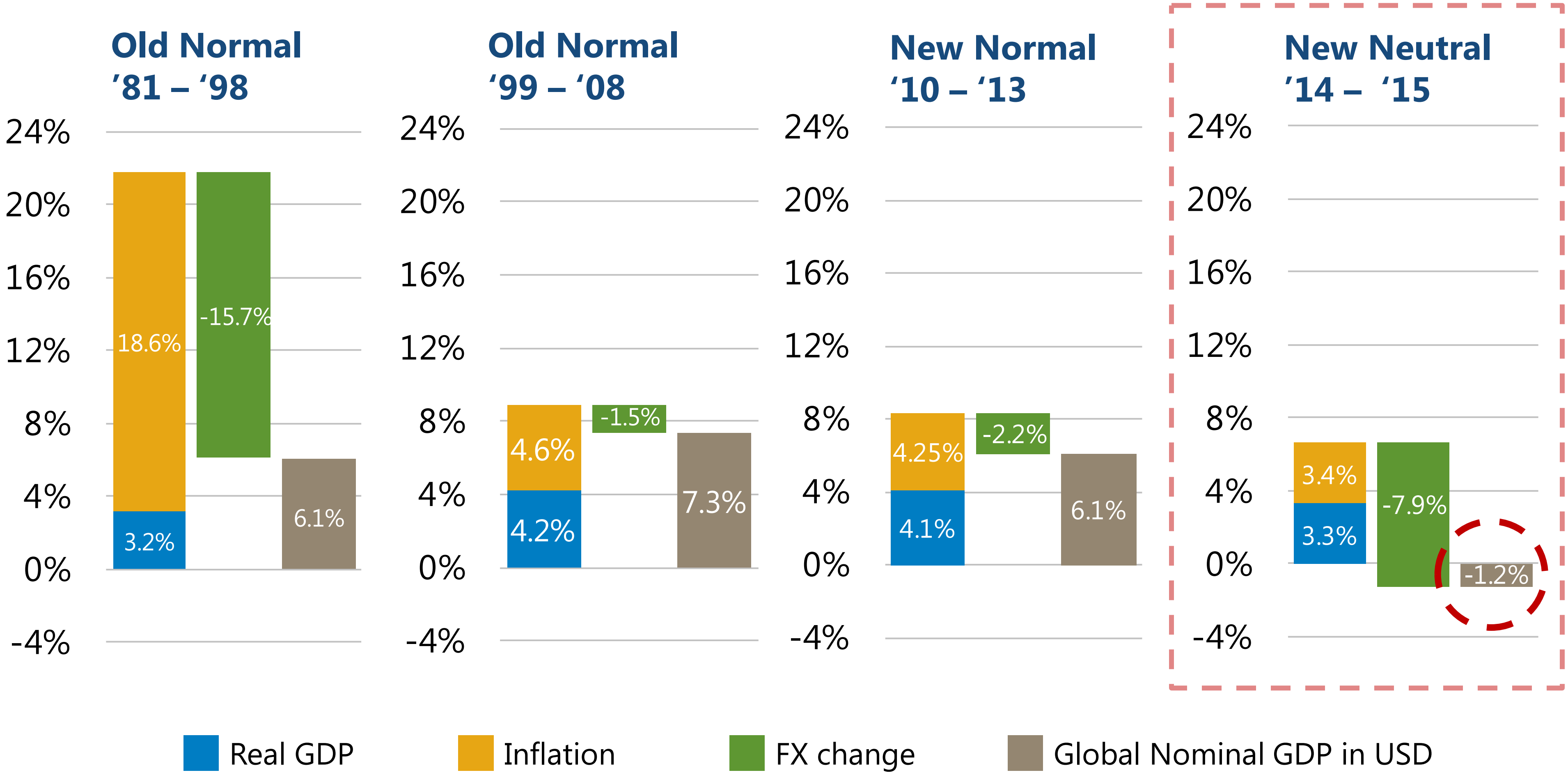
Heightened political risks	**Trump presidency** Tax reform? Fiscal stimulus? Trade barriers? Fed changes?	**European uncertainty** Hard or soft Brexit? Populist outcome in French elections?
Fuller valuations	**94th Percentile** Equity valuations (S&P Shiller P/E)[1]	**10.1X** EBITDA multiple paid for LBO transactions in early 2015, exceeding levels in 2007[4]
Lower yields	**5.3% vs. 2.6%** Barclays US Agg yield Sep. 2007 vs. Dec 2016[3]	**$9.3 TRN** Outstanding Sovereign Debt with negative-yields[2]
Higher systemic leverage and lower market liquidity	**387%** Total debt/GDP exceeds pre-crisis levels for our sample of 10 advanced economies[6]	**-90%** Decline in US primary dealers' corporate bond holdings since '08 as a % of outstanding[5]

For Illustrative Purposes Only

1 As of 30 November 2016. Date range: Jan 1881 to Nov 2016. SOURCE: http://www.econ.yale.edu/~shiller/data.htm
2 As of 28 November 2016. SOURCE: Fitch.
3 As of 30 December 2016 and 28 September 2007. SOURCE: Barclays.
4 As of H1, 2015. SOURCE: Bain & Company Global Private Equity Report 2016 citing S&P Capital IQ LCD
5 The Economist, published 22 October 2016
6 As of December 2015 and June 2007. SOURCE: PIMCO, Haver. 10 advanced economies in sample are U.S., Japan, Germany, France, UK, Italy, Spain, Canada, Sweden, Korea

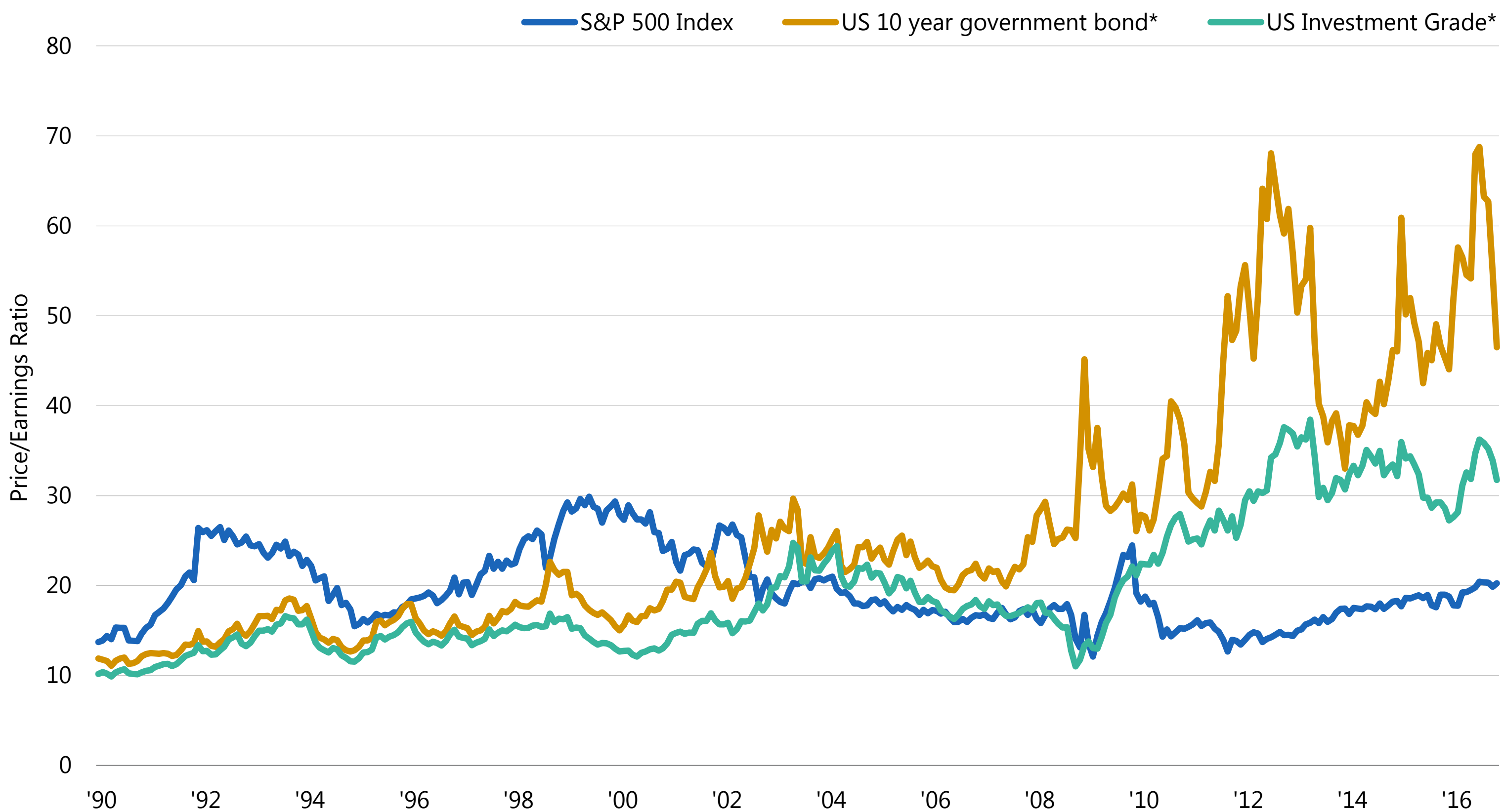
Refer to Appendix for additional outlook and risk information.

Currency volatility is likely to continue to be a significant factor



As of 31 March 2016
SOURCE: IMF, Bloomberg, PIMCO
Refer to Appendix for additional outlook and risk information.

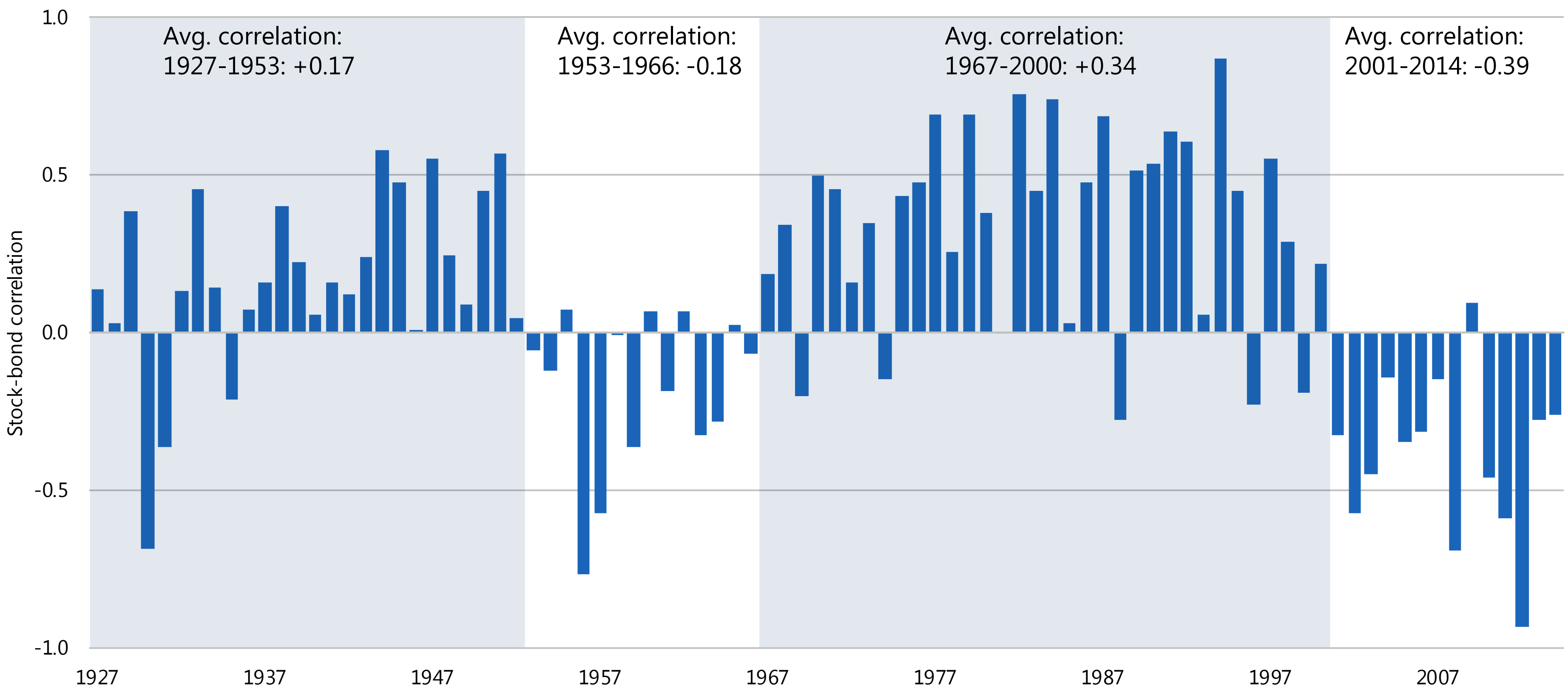
How the world prices certainty vs. uncertainty: a fresh outlook



As of 10 November 2016
SOURCE: Bloomberg, PIMCO
Hypothetical example for illustrative purposes only.
* U.S. 10 year government bond and U.S. Investment Grade Price/Earnings ratios are the inverse of yield to maturity.
U.S. Investment Grade represented by Barclays U.S. Credit Index
Refer to Appendix for additional hypothetical example, outlook and risk information

Historical correlations may not hold

History of the stock-bond correlation: (1927-2014)



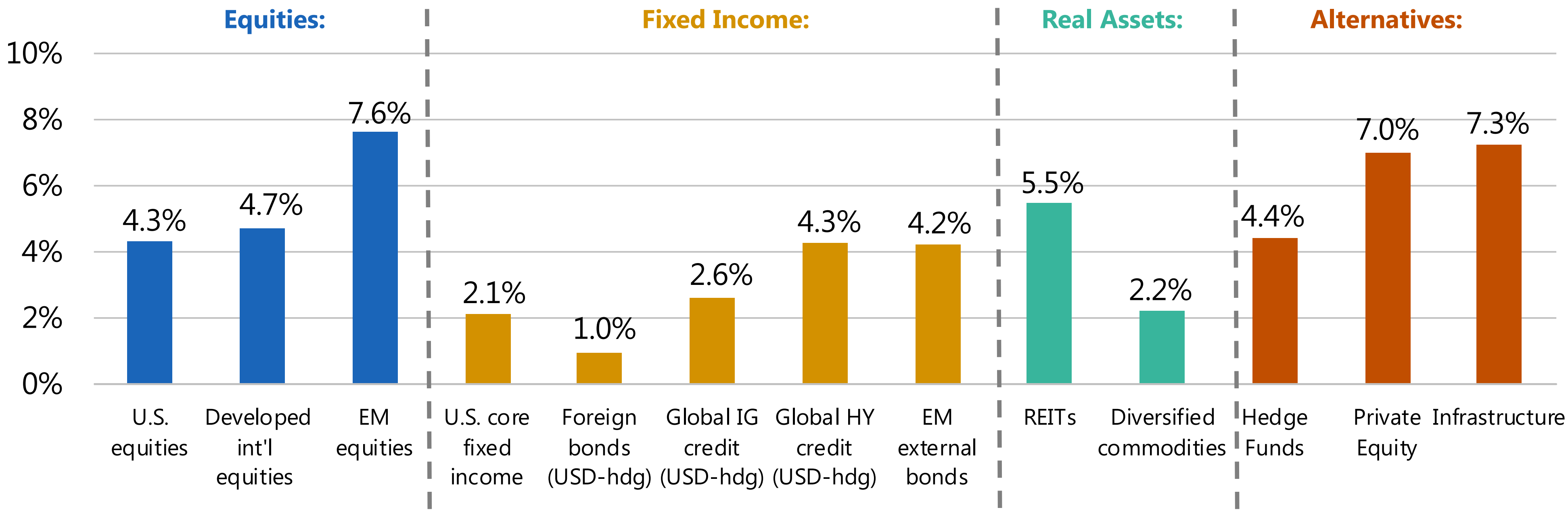
In addition, with rates near historic lows, bonds have less room to rally in a growth shock

SOURCES: Ibbotson, PIMCO, Bloomberg.
Stocks are represented by the S&P 500 (S&P 90 for periods prior to the release of the S&P 500). Correlations are estimated on a non-overlapping basis using monthly returns (12 data points). Correlation data as of June 1927-June 2014. Bonds are represented by long Treasuries (Ibbotson) which should not be interpreted as a full sample representation of the bond market. Different asset class proxies will have different results.
Refer to Appendix for additional correlation, investment strategy, outlook, and risk information.

PIMCO believes most asset classes are priced to deliver lower returns

10 year capital market assumptions

PIMCO's 10-year capital market assumptions[1]



Sharpe Ratio

0.20	0.16	0.25	0.20	-0.11	0.23	0.30	0.22	0.29	0.05	0.36	0.24	0.32

SOURCE: Bloomberg, PIMCO. As of 1 July 2016. **Hypothetical example for illustrative purposes only.**

1 For indices, return estimates are based on the product of risk factor exposures and projected risk factor premia. The projections of risk factor premia rely on historical data, valuation metrics and qualitative inputs from senior PIMCO investment professionals.

U.S. equities: S&P 500 Index; Developed int'l equities: MSCI EAFE Net Dividend Index (USD Unhedged); EM Equities: MSCI Emerging Markets Index; U.S. core fixed income: Barclays U.S. Aggregate Index; Foreign bonds (USD-hdg): JPMorgan GBI Global ex-US USD Hedged; Global IG: Barclays Global Agg Credit (USD Hedged); Global HY: MLX DevelMarkHighYieldConstr(USD Hedged); EM external bonds: JPMorgan Government Bond Index- Emerging Markets Global Diversified Index (Unhedged); REITS: Dow Jones U.S. Select REIT Total Return Index; Diversified commodities: Bloomberg Commodity Index Total Return. Hedge Funds: Dow Jones Credit Suisse Hedge Funds Index; Private Equity: PIMCO Private Equity Model; Infrastructure: PIMCO Infrastructure Model.

For PIMCO Private Equity and Infrastructure Models, risk factor exposures are based on analysis of historical index data, third party academic research and/or qualitative inputs from senior PIMCO investment professionals.

Refer to Appendix for additional investment strategy, return assumption and risk information.

PIMCO’s expects significant variation within asset classes and sectors to continue

There has been a **45%** average annual spread between the best and worst performing asset class

Best Performing ↑ — Worst Performing ↓

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
	62.3%	35.2%	61.1%	53.7%	31.9%	39.0%	35.6%	56.7%	58.0%	77.6%	30.3%	31.5%	26.5%	68.4%	49.0%	35.6%	17.1%
Best Performing	31.8% Commodities	12.3% REITs	25.9% Commodities	54.8% EM Equities	33.2% REITs	41.4% Japanese Equities	36.0% REITs	39.1% EM Equities	5.6% Global Bonds	77.7% EM Equities	28.1% REITs	13.6% TIPs	25.4% Japanese Equities	58.9% Japanese Equities	32.0% REITs	10.9% Japanese Equities	17.1% US HY
	31.0% REITs	8.4% US Bonds	16.6% TIPs	36.2% REITs	25.4% EM Equities	33.6% EM Equities	32.0% EM Equities	16.2% Commodities	5.2% US Bonds	58.2% US HY	18.7% EM Equities	9.4% REITs	18.5% EM Bonds	32.0% U.S. Equities	13.5% U.S. Equities	7.4% European Equities	11.8% U.S. Equities
	14.4% EM Bonds	7.9% TIPs	13.1% EM Bonds	29.0% US HY	11.7% EM Bonds	24.7% European Equities	18.7% European Equities	11.6% TIPs	1.8% Cash	28.5% REITs	16.8% Commodities	8.5% EM Bonds	18.5% European Equities	21.9% European Equities	8.7% Japanese Equities	4.5% REITs	11.4% Commodities
	13.2% TIPs	7.2% Global Bonds	10.3% US Bonds	28.3% U.S. Equities	11.4% Global 60/40	21.4% Commodities	15.6% U.S. Equities	10.3% European Equities	-2.4% TIPs	28.2% EM Bonds	15.1% US HY	7.8% US Bonds	18.2% EM Equities	13.8% Global 60/40	7.6% Global Bonds	1.4% U.S. Equities	11.1% EM Equities
	11.6% US Bonds	5.3% US HY	8.5% Global Bonds	25.7% EM Bonds	11.1% US HY	13.8% REITs	14.2% Global 60/40	9.4% Global 60/40	-10.9% EM Bonds	25.9% U.S. Equities	14.8% U.S. Equities	5.4% Global Bonds	17.1% REITs	7.4% US HY	6.0% US Bonds	1.2% EM Bonds	10.2% EM Bonds
	10.3% Global Bonds	4.1% Cash	3.6% REITs	25.5% Japanese Equities	10.7% U.S. Equities	10.7% EM Bonds	11.8% US HY	7.0% US Bonds	-22.4% Global 60/40	25.8% European Equities	12.0% EM Bonds	5.0% US HY	15.9% U.S. Equities	1.2% REITs	5.8% Global 60/40	1.0% Global Bonds	6.7% REITs
	6.0% Cash	1.4% EM Bonds	1.7% Cash	23.9% Commodities	10.0% European Equities	8.4% Global 60/40	9.9% EM Bonds	6.3% EM Bonds	-26.2% US HY	22.8% Global 60/40	9.6% Global 60/40	2.1% U.S. Equities	15.8% US HY	0.1% Cash	5.5% EM Bonds	0.5% US Bonds	6.5% Global 60/40
	-1.2% European Equities	-2.5% EM Equities	-1.4% US HY	21.7% Global 60/40	9.1% Commodities	4.8% U.S. Equities	8.0% Japanese Equities	5.6% U.S. Equities	-35.6% Commodities	20.9% Japanese Equities	6.5% US Bonds	0.1% Cash	12.2% Global 60/40	-0.1% Global Bonds	4.7% European Equities	0.0% Cash	4.7% TIPs
	-4.1% Global 60/40	-6.5% Global 60/40	-5.8% EM Equities	18.7% European Equities	8.6% Japanese Equities	4.3% Global Bonds	4.8% Cash	5.3% Global Bonds	-36.6% U.S. Equities	18.9% Commodities	6.3% TIPs	-1.9% Global 60/40	7.0% TIPs	-2.0% US Bonds	3.6% TIPs	-0.7% Global 60/40	4.3% European Equities
	-5.9% US HY	-11.9% U.S. Equities	-7.9% Global 60/40	8.4% TIPs	8.5% TIPs	3.0% Cash	4.3% US Bonds	4.7% Cash	-39.2% REITs	11.4% TIPs	4.6% Global Bonds	-12.7% European Equities	5.7% Global Bonds	-2.4% EM Equities	2.5% US HY	-1.4% TIPs	3.9% Global Bonds
	-9.0% U.S. Equities	-18.6% European Equities	-17.8% Japanese Equities	4.1% US Bonds	4.9% Global Bonds	2.8% TIPs	3.6% Global Bonds	1.9% US HY	-40.7% Japanese Equities	5.9% US Bonds	0.1% Cash	-13.3% Commodities	4.2% US Bonds	-6.6% EM Bonds	0.0% Cash	-4.5% US HY	2.6% US Bonds
	-26.6% Japanese Equities	-19.5% Commodities	-22.0% U.S. Equities	3.1% Global Bonds	4.3% US Bonds	2.7% US HY	2.1% Commodities	-9.9% Japanese Equities	-40.9% European Equities	5.1% Global Bonds	-1.3% Japanese Equities	-15.5% Japanese Equities	0.1% Cash	-8.6% TIPs	-1.9% EM Equities	-14.6% EM Equities	2.1% Japanese Equities
Worst Performing	-30.4% EM Equities	-22.9% Japanese Equities	-35.2% European Equities	1.1% Cash	1.2% Cash	2.4% US Bonds	0.4% TIPs	-17.6% REITs	-52.4% EM Equities	0.2% Cash	-2.2% European Equities	-17.9% EM Equities	-1.1% Commodities	-9.5% Commodities	-17.0% Commodities	-24.7% Commodities	0.3% Cash

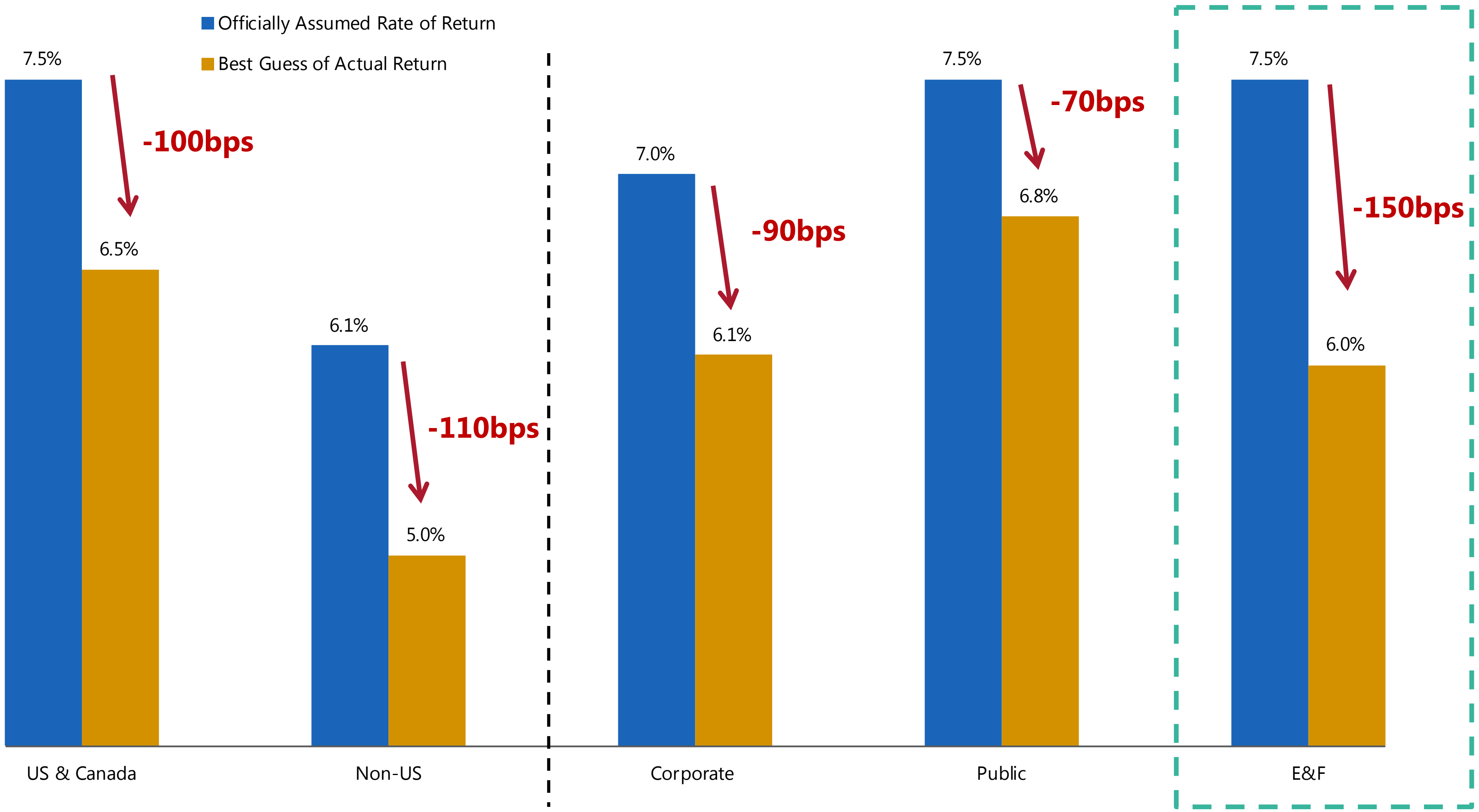
Source: Bloomberg, as of December 2016

Indices: Citi 3m Tbill, Barclays Global Agg USD Hedged, Barclays Corporate High Yield, Bloomberg Commmodities Index, Barclays US Tips, JPMorgan Emerging Market Bond, MSCI Europe, S&P 500, DJ US Select REITs, Global 60/40 = 60% MSCI ACWI and 40% Barclays Global Agg USD Hedged

Refer to Appendix for additional investment strategy and risk information.

Lower prospective returns are now a global consensus

Investors globally face a 70-150bps gap between target and achievable returns



Source: www.AI-CIO.com, retrieved Sept. 2, 2016
From May 26 through June 3, 2016, 162 global asset owners provided both their "long-term expected/assumed rate of return" and their "best guess at what [their] portfolio will actually return over that time frame." Median figures appear in the charts. The left hand side reflects figures by location. The right hand side reflects figures based on asset owner type.
Not intended to reflect past or future performance of any PIMCO investment product or strategy.

Low-return environment poses unique challenges for public plans

There are risks to overly optimistic or overly pessimistic return assumptions

Too Optimistic

Increasing pressure on already-stretched plan sponsors to make additional contributions

Increasing risk in an effort to achieve lofty return targets may lead to excessive drawdowns

Too Pessimistic

Any asset allocation solution needs to walk a delicate balance between the two, seeking returns, while also guarding against permanent reduction in funded status

How are investors responding?
Cut return targets or…

Add Risk	Reduce Costs
• Shifting to a more aggressive asset allocation • Higher allocations to illiquid strategies • Strategic use of leverage • Rotating to higher yielding fixed income sectors	• Going passive or smart passive • Replacing discretionary with systematic strategies • Consolidating manager line-ups • Reducing implementation costs

Higher *net* returns… but at what cost?

Source: PIMCO.
Refer to Appendix for additional investment strategy and risk information.

A holistic approach is needed
Changes to all portfolio components will be necessary

1. Get more out of equities
- Evaluate factor-based/systematic strategies; factor and manager selection are crucial
- Use "portable alpha" to enhance capital efficiency

2. Re-think fixed income
- Orient towards income
- Add flexibility

3. Embrace non-traditional diversifiers
- Complement duration with other diversifiers
- Incorporate managed futures and alternative risk premia

4. Higher allocation to private markets
- Change the mix of illiquid strategies
- Avoid concentration in traditional PE

Source: PIMCO.
Refer to Appendix for additional investment strategy and risk information.

Appendix

Past performance is not a guarantee or a reliable indicator of future results.

CORRELATION
The correlation of various indexes or securities against one another or against inflation is based upon data over a certain time period. These correlations may vary substantially in the future or over different time periods that can result in greater volatility.

FORECAST
Forecasts, estimates and certain information contained herein are based upon proprietary research and should not be considered as investment advice or a recommendation of any particular security, strategy or investment product. There is no guarantee that results will be achieved.

HYPOTHETICAL EXAMPLE
No representation is being made that any account, product, or strategy will or is likely to achieve profits, losses, or results similar to those shown. Hypothetical or simulated performance results have several inherent limitations. Unlike an actual performance record, simulated results do not represent actual performance and are generally prepared with the benefit of hindsight. There are frequently sharp differences between simulated performance results and the actual results subsequently achieved by any particular account, product, or strategy. In addition, since trades have not actually been executed, simulated results cannot account for the impact of certain market risks such as lack of liquidity. There are numerous other factors related to the markets in general or the implementation of any specific investment strategy, which cannot be fully accounted for in the preparation of simulated results and all of which can adversely affect actual results.

INVESTMENT STRATEGY
There is no guarantee that these investment strategies will work under all market conditions or are suitable for all investors and each investor should evaluate their ability to invest long-term, especially during periods of downturn in the market. No representation is being made that any account, product, or strategy will or is likely to achieve profits, losses, or results similar to those shown.

Appendix

OUTLOOK
Statements concerning financial market trends or portfolio strategies are based on current market conditions, which will fluctuate. There is no guarantee that these investment strategies will work under all market conditions or are suitable for all investors and each investor should evaluate their ability to invest for the long term, especially during periods of downturn in the market. Outlook and strategies are subject to change without notice.

RETURN ASSUMPTIONS
Return assumptions are for illustrative purposes only and are not a prediction or a projection of return. Return assumption is an estimate of what investments may earn on average over the long term. Actual returns may be higher or lower than those shown and may vary substantially over shorter time periods.

RISK
Investing in the **bond market** is subject to risks, including market, interest rate, issuer, credit, inflation risk, and liquidity risk. The value of most bonds and bond strategies are impacted by changes in interest rates. Bonds and bond strategies with longer durations tend to be more sensitive and volatile than those with shorter durations; bond prices generally fall as interest rates rise, and the current low interest rate environment increases this risk. Current reductions in bond counterparty capacity may contribute to decreased market liquidity and increased price volatility. Bond investments may be worth more or less than the original cost when redeemed. **Equities** may decline in value due to both real and perceived general market, economic and industry conditions. **Mortgage- and asset-backed securities** may be sensitive to changes in interest rates, subject to early repayment risk, and while generally supported by a government, government-agency or private guarantor, there is no assurance that the guarantor will meet its obligations. Investing in **foreign-denominated and/or -domiciled securities** may involve heightened risk due to currency fluctuations, and economic and political risks, which may be enhanced in emerging markets. **Inflation-linked bonds (ILBs)** issued by the various governments around the world are fixed-income securities whose principal value is periodically adjusted according to the rate of inflation. Repayment upon maturity of the original principal as adjusted for inflation is guaranteed by the government that issues them. Neither the current market value of inflation-indexed bonds nor the value a portfolio that invests in ILBs is guaranteed, and either or both may fluctuate. ILBs decline in value when real interest rates rise. In certain interest rate environments, such as when real interest rates are rising faster than nominal interest rates, ILBs may experience greater losses than other fixed income securities with similar durations. **Commodities** contain heightened risk, including market, political, regulatory and natural conditions, and may not be suitable for all investors. **Currency rates** may fluctuate significantly over short periods of time and may reduce the returns of a portfolio. **All investments** contain risk and may lose value.

It is not possible to invest directly in an unmanaged index.

CMR2017-0104-240702